Remarks

The present Amendment responds to the Official Action mailed on December 31, 2003. In the Official Action, claims 1-4, 6-9 and 12 were rejected under 35 U.S.C. 103(a) over U.S. Patent No. 6,654,531 ("Gruner-Nielsen"). Claims 5, 10, and 11 were rejected under 35 U.S.C. 103(a) over Gruner-Nielsen and further in view of U.S. Patent No. 6,304,691 ("Espindola"). Claims 13-18 were allowed. In response to the Official Action, claims 4, 10 and 12 have been amended. Claims 1-18 are presently pending.

Each of the issues raised in the Official Action is addressed in turn below. It is noted that a brief summary of the invention to provide context was presented as part of the Amendment filed in response to the Official Action dated April 23, 2003, and should be reconsidered as necessary in connection with the consideration of this Amendment.

Rejection of Claims 1-4, 6-9 and 12

Claims 1-4, 6-9 and 12 stand rejected under 35 U.S.C. § 103(a) over Gruner-Nielsen.

It is respectfully asserted that the rejection of these claims is based on an incorrect understanding of the term "inflection point" in the present application. As used herein, the term "inflection point" refers to a point on a curve where the curvature changes from positive to negative, or vice versa. In other words, in order for a curve to have an inflection point, at least a portion of the curve must have an S-shaped profile, where the curve changes from convex to concave. S-shaped profiles may be seen, for example, in curve 600 (Fig. 6), curve 802 (Fig. 8), and curve 1002 (Fig. 10) of the present application.

Expressing the concept of "inflection point" using mathematical terminology, an inflection point occurs where the curve's second derivative is equal to zero. Not all curves have an inflection point. For example, a simple parabola expressed by the equation $y = x^2$ has a first derivative of 2x, and a second derivative of 2. Because, in this case, the second derivative can never be equal to zero, the parabola has no inflection point.

In the Official Action, on p. 2, in referring to Fig. 8 of Gruner-Nielsen, it is stated that "at the peak of the curve ... the derivative is zero." However, it is respectfully noted that in fact at the peak of the curve, it is the first derivative that is equal to zero. In light of the above discussion, it will be appreciated that, in fact, in Fig. 8 of Gruner-Nielsen, the second derivative is apparently never equal to zero because the curve never changes from concave to convex. Thus, in Fig. 8 of Gruner-Nielsen, the curve has no apparent inflection point. Thus, Gruner-Nielsen does not teach and does not suggest a dispersion compensation module or a dispersion compensating fiber having a specified inflection point.

Claim 1 is directed to a dispersion compensation module that includes a length of dispersion compensating fiber designed to have a dispersion slope inflection point at a wavelength near the 1.55μm nominal signal wavelength of the optical communication system. Because Gruner-Nielsen does not teach and does not suggest a dispersion compensating fiber having a specified inflection point, it is asserted that claim 1 is allowable over Gruner-Nielsen.

Claims 2 and 3 depend from claim 1, incorporating all of the limitations thereof and adding further limitations thereto. It is therefore asserted that claims 2 and 3 are allowable over Gruner-Nielsen for the reasons advanced above in support of the patentability of claim 1 and further on the basis of the added limitations.

Claim 4 is an independent claim directed to a dispersion compensating fiber for use in an optical communication system. Claim 4 has been amended to clarify that the claimed dispersion compensating fiber is designed to have a dispersion slope inflection point at a wavelength near a 1.55μm transmission wavelength. As discussed above, Gruner-Nielsen does not teach and does not suggest a dispersion compensating fiber having a specified dispersion slope inflection point. It is therefore asserted the claim 4, as amended, is allowable over Gruner-Nielsen.

Claim 6 depends from claim 4, incorporating all of the limitations thereof and adding further limitations thereto. It is therefore asserted that claim 6 is allowable for the reasons advanced above in support of the patentability of claim 4, and further on the basis of the added limitations.

Claim 7 is an independent claim directed to a dispersion compensating fiber having a core region designed to provide a dispersion slope having an inflection point at a wavelength near a 1.55 μm transmission wavelength. As discussed above, Gruner-Nielsen does not teach and does not suggest a dispersion compensating fiber having a specified dispersion slope inflection point. It is therefore asserted the claim 7, as amended, is allowable over Gruner-Nielsen.

Claim 8 depends from claim 7, incorporating all of the limitations thereof and adding further limitations thereto. It is therefore asserted that claim 8 is allowable for the reasons advanced above in support of the patentability of claim 7, and further on the basis of the added limitations.

Claim 9 is an independent claim directed to a dispersion compensating fiber comprising a core region comprised of two or more segments, each segment having a radii and a relative refractive index percent, Δ %, wherein the radii and Δ % for each segment are chosen to provide

the dispersion compensating fiber with a dispersion slope having an inflection point at a wavelength near a 1.55 μm transmission wavelength. As discussed above, Gruner-Nielsen does not teach and does not suggest a dispersion compensating fiber having a specified dispersion slope inflection point. It is therefore asserted the claim 7, as amended, is allowable over Gruner-Nielsen.

Claim 12 is an independent claim directed to a dispersion compensating fiber comprising a core region having two or more segments, each segment having a radii and a relative refractive index percent. Claim 12 has been amended to clarify that the radii and Δ % for each segment are chosen to provide the dispersion compensating fiber with a dispersion slope having an inflection point at a wavelength near a 1.55 μm transmission wavelength. As discussed above, Gruner-Nielsen does not teach and does not suggest a dispersion compensating fiber having a specified dispersion slope inflection point. It is therefore asserted the claim 12, as amended, is allowable over Gruner-Nielsen.

Rejection of Claim 5, 10 and 11

Claims 5, 10 and 11 stand rejected under 35 U.S.C. 103(a) over Gruner-Nielsen and further in view of Espindola.

It is respectfully asserted that Espindola fails to add anything of significance to Gruner-Nielsen. Specifically, Espindola does not teach and does not suggest, either by itself or in combination with Gruner-Nielsen, a dispersion compensating fiber having a specified dispersion slope inflection point.

Claim 5 depends from claim 4, incorporating all of the limitations thereof and adding further limitations thereto. As discussed above, claim 4 is an independent claim directed to a dispersion compensating fiber designed to have a dispersion slope inflection point at a wavelength near a 1.55μm nominal signal wavelength. As discussed above, Gruner-Nielsen and Espindola do not teach and do not suggest a dispersion compensating fiber having a specified inflection point. Therefore, it is asserted that claim 5 is allowable over Gruner-Nielsen and Espindola, both for the reasons advanced above in support of the patentability of claim 4, and further on the basis of the added limitations.

Claim 10 is directed to a dispersion compensating fiber having a core region designed to provide a relative dispersion slope that substantially matches a relative dispersion slope of a transmission fiber over at least a 40 nm wavelength bandwidth near a 1.55 μm transmission wavelength. Claim 10 have been amended to clarify that the claimed fiber is designed to have an inflection point within the 40 nm operating bandwidth. Because Gruner-Nielsen and Espindola do not teach and does not suggest a dispersion compensating fiber having a specified inflection point, it is asserted that claim 10 is allowable over these references.

Claim 11 depends from claim 10, incorporating all of the limitations thereof and adding further limitations thereto. It is therefore asserted that claim 11 is allowable for the reasons advanced above in support of the patentability of claim 10 and further on the basis of the added limitations.

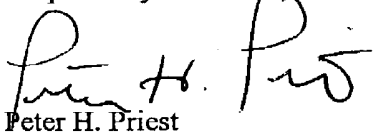
Allowed Claims 13-18

The allowance of claims 13-18 is hereby acknowledged.

Conclusion

For the above reasons, prompt allowance of the application is requested. If the Examiner is of the opinion that an interview would be helpful in disposing of any remaining issues, the Examiner is invited to telephone the undersigned at (919) 806-1600.

Respectfully submitted,



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